

REMARKS

Claims 1-6, 8-17 and 19-82 are pending in this application. Applicants appreciate the Office Action's indication that claims 7, 14-15, 18, 24, 31-32, 36, 49, 56-57, 61, 68-69, 74 and 81-82 contain allowable subject matter.

By this Amendment, claims 1 and 17 are amended to incorporate the allowable subject matter of claims 7 and 18, respectively. Claims 7 and 18 are cancelled. Claims 2 and 3 are amended to incorporate the feature "the available marginal light being the inside boundary light of the range to be actually used as illuminating light." Claims 8 and 9 are amended as suggested by the Examiner. Claim 19 is amended to define a specified position being a design beam-condensing spot of the first reflecting mirror. (See the specification at, for example, page 19, paragraph [0071] and Fig. 8.) Claims 21-44, 46-69 and 71-82 are amended to recite a "projector" instead of an "illumination system."

Applicant thanks Examiners Ward and May for the courtesy extended to Applicant's representative, Mr. Luo, during the June 29, 2006 personal interview. The substance of the personal interview is incorporated in the following remarks.

The Office Action objects to the claims. Claims 8, 9 and 19 are amended for better clarity. Regarding claim 4, it is respectfully submitted that claim 4 recites that the marginal light is determined depending on the structure of the arc tube. As disclosed in the specification at, for example, Fig. 1 in paragraph [0041], the arc tube may include two electrodes 12. The distance between the two electrodes may affect the structure of the arc tube. Thus, the determination of the marginal light based on the structure of the arc tube is a limitation having structural characteristics. Thus, the objection to claim 4 is improper.

Regarding claims 9, 26, 38, 51, 63 and 76, the Office Action asserts that the recitation "the outer surface of the 2nd reflecting mirror is formed to so as to diffuse-reflect the light incident from the reflecting surface side" does not have enough description in the

specification. However, the above-quoted feature is described in the specification at, for example, paragraph [0048]. Thus, the above-quoted feature is supported in the specification.

For at least the above reasons, withdrawal of the objection to the claims is respectfully requested.

The Office Action rejects claims 1, 3-5, 9, 12, 58, 59, 63 and 66 under 35 U.S.C. §102(b) over JP 08-031382 to Matsushita; rejects claims 2, 17, 19, 33, 34, 38 and 41 under 35 U.S.C. §103(a) over Matsushita; rejects claims 35, 37, 39 and 40 under 35 U.S.C. §103(a) over Matsushita in view of U.S. Patent No. 6,356,700 to Strobl; rejects claim 42 under 35 U.S.C. §103(a) over PG Publication 2003/0184200 to Ookahara; rejects claims 6, 8, 10, 11, 60, 62, 64 and 65 under 35 U.S.C. §103(a) over Matsushita in view of Strobl; rejects claims 13 and 67 under 35 U.S.C. §103(a) over Matsushita in view of Ookahara; rejects claims 16, 20, 22, 26 and 29 under 35 U.S.C. §103(a) over Matsushita in view of U.S. Patent No. 5,153,752 to Kurematsu; rejects claims 23, 25, 27 and 28 under 35 U.S.C. §103(a) over Matsushita in view of Kurematsu further in view of Strobl; rejects claim 30 under 35 U.S.C. §103(a) over Matsushita in view of Kurematsu further in view of Ookahara; rejects claims 45-47, 51 and 54 under 35 U.S.C. §103(a) over Matsushita in view of Kurematsu; rejects claims 48, 50, 52 and 53 under 35 U.S.C. §103(a) over Matsushita in view of Kurematsu further in view of Strobl; rejects claim 55 under 35 U.S.C. §103(a) over Matsushita in view of Kurematsu further in view of Ookahara; rejects claims 70-73, 75-77 and 79 under 35 U.S.C. §103(a) over Matsushita in view of Strobl further in view of Kurematsu; and rejects claim 80 under 35 U.S.C. §103(a) over Matsushita in view of Strobl and Kurematsu further in view of Ookahara. These rejections are respectfully traversed.

As outlined above, independent claims 1 and 17 are amended to incorporate the allowable subject matter of claims 7 and 18, respectively. Thus, the rejection of claims 1 and 17, and their dependent claims, is overcome.

Claim 2 recites a diameter D2 at the opening end of the reflecting surface of the first reflecting mirror being within the range that satisfies $\theta_e > \theta_d$ when θ_d is approximated by $\theta_d = 90^\circ + \tan^{-1} \{(Le/2 + Lr) / (d2/2)\}$. See the specification at, for example, Fig. 6 and paragraphs [0061] - [0065]. Matsushita does not disclose or suggest these features.

As discussed during the personal interview, Matsushita discloses a different structure. In particular, an annotated version of Fig. 1 of Matsushita is enclosed herein for illustration. In this Figure, θ_e is drawn by the definition of claim 2 as an angle formed between a line connecting the opening end of the reflecting surface of the first reflecting mirror and an end of the electrode adjacent to the first reflecting mirror together and a straight line of the optical axis of the illumination system extending toward the rear side of the illumination system. θ_d is drawn by the definition of an angle formed between the light emitted from an end of the electrode of the electrode ends adjacent to the first reflecting mirror without interception by the second reflecting mirror and a straight line of the optical axis of the illumination system extending toward the rear side of the illumination system. As discussed during the personal interview, Matsushita discloses that θ_e is less than θ_d . The diameter of the opening of the first mirror of Matsushita is not within the range to satisfy $\theta_e > \theta_d$, but instead within the range of $\theta_e < \theta_d$. Thus, Matsushita does not disclose the subject matter recited in claim 2.

Furthermore, as discussed during the personal interview, the subject matter recited in claim 2 is directed to the recognition of increasing illuminating light. See the specification at, for example, paragraphs [0061] - [0065]. Matsushita does not disclose such a recognition. Thus, Matsushita does not even suggest the subject matter recited in claim 2.

Claim 3 recites a diameter D2 of an opening end of the reflecting surface of the first reflecting mirror has a size that allows reflection of a boundary light of the light emitted from an end of an arc generating between the electrodes adjacent to the first reflecting mirror without interception by the second reflecting mirror. For the same reasons discussed above in

connection with claim 2, due to the existing structure of Matsushita ($\theta_e < \theta_d$), Matsushita does not disclose such feature of claim 3.

Strobl, Ookahara and Kurematsu do not supply the subject matter lacking in Matsushita. Thus, Matsushita, Strobl, Ookahara and Kurematsu, either individually or in combination, do not disclose or suggest the subject matter recited in claims 2 and 3.

For at least the above reasons, claims 1-3 and 17, and claims 4-6, 8-16 and 19-82 depending therefrom, are patentable over Matsushita, Strobl, Ookahara and Kurematsu. Accordingly, withdrawal of the rejection of claims 1-6, 8-17 and 19-82 under 35 U.S.C. §102(b) and §103(a) is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-6, 8-17 and 19-82 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Fig. 1 of JP 8-31382 (annotated)

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